

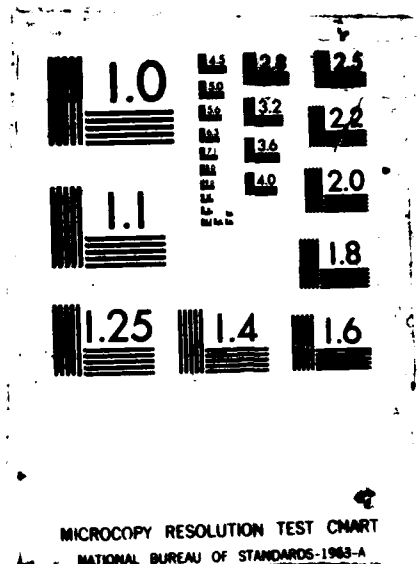
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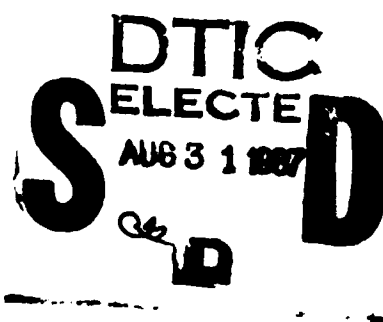
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## A Bibliography of the Physical Oceanography of Straits

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## Executive Summary

As part of a project to characterize straits dynamically, a bibliography of papers that discuss the physical oceanographic aspects of straits is presented. The bibliography was constructed from computer data base searches and from the authors' knowledge of the subject. The bibliography contains over 600 entries and is current through June 1986.

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# A Bibliography of the Physical Oceanography of Straits

## Introduction

Straits are well known as regions of high gradients in many important oceanographic variables: water mass properties, water depth, sediment concentration, velocity, vorticity, etc. They strongly exhibit such fascinating physical phenomena as internal soliton generation, and they serve as inlet and outlet boundary conditions on the adjacent water bodies. Straits also receive high interest because they are natural sites for restricting the passage of commercial or naval vessels (so-called "chokepoints"). Thus, the understanding of the dynamics of straits is both scientifically interesting and strategically important. In 1986 we began a review of the dynamics of straits with the long-term goal of establishing a general classification scheme. A better appreciation for the dynamical attributes of straits will emerge from such a scheme, and the understanding of straits in terms of general attributes will contribute directly to the design of field experiments and numerical models.

As ideas about the classification scheme advanced, it became clear that examples from measurements of actual straits were critical to test the utility of the classification scheme. Unlike many similar physical oceanographic topics, however, we could find no single source on strait dynamics—no monograph, no symposium volume, no review article. Thus we began to compile our own list of references, and we then realized that a formal bibliography on the physical oceanography of straits would be beneficial to the ocean research community.

## Bibliographic search

We compiled the bibliography from two sources. A computerized library search yielded the majority of the references, and our own knowledge of the literature on straits supplemented the computer data bases. Prominent in this category were references that did not discuss straits directly at any length, but did discuss some of the dynamical issues that are important in straits.

The computer data base search used DIALOG Information Services, Inc., through the facilities of the Navy's Matthew Fontaine Maury Library located at NSTL, Mississippi. Initially we queried the following

data bases: *Meteorological and Geostrophysical Abstracts*, *Oceanic Abstracts*, *Aquatic Science Abstracts*, *GEOARCHIVE*, *GEOREF*, and *BHRA Fluid Engineering*. The short description of each data base as provided by DIALOG is listed in the Appendix. The same set of keywords was used to check each data base: Strait, Passage, or Channel, and Temperature, Conductivity, Salinity, Current, Tide, Oceanic Front, or Oceanography. We also specified English as the language. Only the first three data bases returned a useful number of references. The inclusive dates for the data bases were *Meteorological and Geostrophysical Abstracts* (1970 to June 1986), *Oceanic Abstracts* (1964 to June 1986), and *Aquatic Abstracts* (1978 to June 1986).

We checked this method by looking for a number of key references that we felt should appear, and in every case they appeared in one or more of the data base listing. This showed that the bibliography is reliable, but useful references were undoubtedly missed.

Two of the data bases had irritating attributes. *Meteorological and Geostrophysical Abstracts* often listed only the first author, so that citations are sometimes incomplete. Worse, we found several cases in the earlier years of the *Oceanic Abstracts* where the citation was by last author only. We corrected many of these omissions by checking the individual references for single author papers in the collection of the Maury Oceanographic Library. In about 20 cases, however, the reference was not held by the library, so the citations in the bibliography may list authors inaccurately.

We discarded well over half the references from the computer data bases because we judged them irrelevant to our topic. We were very lenient in our definition of relevancy, but papers with titles such as *Paleomagnetic inclination variations*. . . or *Neogene sedimentation*. . . were not used. A suprisingly large number of references to channel catfish also appeared, and were rejected. We were strongly biased toward the English language, although a number of non-English papers are included either because we were familiar with them or because a standard English translation was available.

In addition to the computer data base, we added references of which we were otherwise aware. These

references included recent papers not yet in the abstracting data bases, papers in press, and particularly relevant reports. We also included books or review papers on topics related to the physical oceanography of straits because we felt that they provided an excellent start for thinking about strait dynamics. Included in this category are Bowden (1983), Csanady (1973, 1982), Dyer (1973), Farmer and Freeland (1983), Fisher et al. (1979), Freeland et al (1980), Ippen (1966), Nihoul (1978), Officer (1976) and Turner (1973).

## Summary

No one reference gives a useful overview of the physical oceanography of straits. As an initial step toward synthesizing present knowledge, we compiled a bibliography using a computer data base and our knowledge of the subject.

## Appendix A: Description of Data Bases

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*Aquatic Sciences and Fisheries Abstracts (ASFA)* is a comprehensive data base on life sciences of the seas and inland waters, as well as related legal, political, and social topics. It includes information on aquatic biology, oceanography, fisheries, and water pollution. Corresponding to the printed publication, *Aquatic Science and Fisheries Abstracts, Parts 1 and 2*, ASFA cites primary journals and such other source documents as books, conference proceedings, and technical research reports.

*BHRA Fluid Engineering* provides indexing and abstracting of world-wide information on all aspects of fluid engineering, including theoretical research and the latest technology and applications. All areas of fluid engineering are covered, including statics and dynamics, and laminar and turbulent flow. Data is taken from the British Hydromechanics Research Association's ten secondary abstract publications, those that abstract over 550 technical reports and British patents. Major fields covered include civil engineering hydraulics, industrial aerodynamics, dredging, fluid flow, fluid power, fluid sealing, fluidics feedback, and tribology.

*GEOARCHIVE* is a comprehensive geoscience data base that indexes more than 100,000 references each year. Information indexed annually for *GEOARCHIVE* includes more than 5000 serials, books from more than 1000 publishers, several hundred conferences, doctoral dissertations, and technical reports. About 100,000 geological maps from the Institute of Geological Sciences libraries are being indexed and added to *GEOARCHIVE*. *GEOARCHIVE*, as such, has no printed equivalent, but several secondary publications are printed from the information contained in the *GEOARCHIVE* data base, such as *Geotitles Weekly*, *Geocom Bulletin*, *Geoscience Documentation*, and *Bibliography of Vertebrate*

*Paleontology*. Mineral and petroleum production and resources, names of new taxa, new minerals, and new stratigraphic names are specific examples of the data currently being entered into *GEOARCHIVE*, which broadly covers the fields of geophysics, geochemistry, geology, and mathematical geology.

*GEOREF* provides comprehensive access to more than 4500 international journals, plus books, conference papers, government publications, dissertations, theses, and maps concerned with all aspects of geology, geochemistry, geophysics, mineralogy, paleontology, petrology, and seismology. Approximately 40% of the indexed publications originate in the U.S. Publications of international organizations make up about 7% of *GEOREF*.

*Meteorological and Geostrophysical Abstracts* provides current citations in the English language for the most important meteorological and geostrophysical research published in world-wide literature sources. Over 200 sources, including technical journals, monographs, proceedings, reviews, and annual publications are scanned for relevant literature. Subject coverage includes meteorology, astrophysics, physical oceanography, hydrosphere/hydrology, environmental sciences, and glaciology. Abstracts are included for records from 1972 to 1973 and from 1976 to the present.

*Ocean Abstracts* organizes and indexes technical literature published world wide on marine-related subjects. Over 9000 citations from approximately 2000 domestic and international sources are added to the data base each year. Records cite journals, books, technical reports, conference proceedings, and government and trade publications. Major subject areas covered by *Oceanic Abstracts* are oceanography, marine biology, marine pollution, ships and shipping, geology and geophysics, meteorology, and governmental and legal aspects of marine resources.

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